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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|------------------------------|------------------|
| 10/670,101 | 09/24/2003 | James Matthew Murduck | 12-1054 | 8150 |
| 27160 | 7590 | 12/28/2004 | EXAMINER | |
| KATTEN MUCHIN ZAVIS ROSENMAN 525 WEST MONROE STREET CHICAGO, IL 60661-3693 | | | WOJCIECHOWICZ, EDWARD JOSEPH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2815 | |

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|----------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/670,101 | Applicant(s) MURDUCK ET AL. | |
| | Examiner Edward Wojciechowicz | Art Unit 2815 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9-24-03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 19, 23, and 24 are rejected under 35 U.S.C. 102(a) as being anticipated by Zagoskin et al.

The reference to Zagoskin teaches the basic structure of an aluminum oxide layer which is sandwiched between two aluminum layers. See, for example, the discussion at [0084]. With regard to claims 23 and 24, Zagoskin also teaches that the aluminum layers may be formed at thicknesses greater than 30 nm, thus inherently meeting these claim limitations. See the discussion at [0073].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-22, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zagoskin in view of applicant's admitted prior art on page 9 of the specification which incorporates IBM Technical Disclosure Bulletin, Vol.18, No. 8, January 1978, pgs. 2645, by reference. As taught in the IBM bulletin, it is also known in the art to form the device described in claim 23 by doping the aluminum layers with "paramagnetic impurities" or oxygen or nitrogen, as claimed. One would be motivated to combine this teaching with Zagoskin so as to lower the critical temperature of the superconducting conductors as described in the IBM bulletin.

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Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zagoskin in view of Kwon. Kwon also teaches the formation of a device similar to that described in claim 23, and further states that sandwich structures of aluminum/ aluminum oxide/ and either of Ti, Mo or niobium nitride are possible. See the discussion at [0065]. One would be motivated to combine this teaching with Zagoskin so as to achieve the advantages of the batch deposition and in-situ cleaning described by Kwon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Wojciechowicz whose telephone number is 571-272-1739. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edward Wojciechowicz
Primary Examiner
Art Unit 2815

EW: ew